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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,098	03/30/2004	Boguslaw Gajdeczko	1857.2430000	3089
26111	7590	08/15/2005		
STERNE, KESSLER, GOLDSTEIN & FOX PLLC 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005				

EXAMINER
BONANTO, GEORGE P

ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.F.

Office Action Summary	Application No. 10/812,098	Applicant(s) GAJDECZKO ET AL.	
	Examiner George P. Bonanto	Art Unit 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: paragraphs 34 and 37 contains the phrase, "the proximity surface 206." The phrase, "proximity surface" should be deleted and the phrase, "proximity sensor surface" should be inserted in its place for clarity. Appropriate correction is required.

Claim Objections

Claims 1 and 11-13 are objected to because of the following informalities: claims 1 and 11-13 contain the phrase, "a displaceable inner portion." The word "displaceable" should be deleted and the word "displaceable" should be inserted in its place. Appropriate correction is required.

Claims 6 and 7 are objected to because of the following informalities: claims 6 and 7 contain the phrase, "first and second lights." The claim elements "first and second lights" lack antecedent basis. Appropriate correction is required.

Claim 8 is objected to because of the following informalities: claim 8 contains the claim elements, "the first light" and "the second light." These claim elements lack antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 6,496,265 to Duncan et al.

As to claim 1, Duncan et al. disclose a pressure gauge comprising a diaphragm having a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between first and second sides of the diaphragm (Figs. 28a and 28b and col. 8 line 65 to col. 9 line 44) a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion (CCD array coupled to diaphragm by fiber, Col. 5 lines 19-38) and a monitor and control system coupled to the sensor and adapted to determine the pressure difference from the displacement of the diaphragm (DSP, col. 5 lines 39-50).

As to claim 3, Duncan et al. further disclose an optically reflective coating on a first side of the diaphragm inner portion (reflector surface, col. 5 line 32) wherein the sensor includes an optical transmitter and receiver optically aligned with the optically reflective coating (col. 5, lines 19-50).

As to claim 4, Duncan et al. further disclose that the sensor comprises an interferometer (col. 5 lines 19-20).

As to claim 5, Duncan et al. further disclose that the sensor comprises a white light interferometer (col. 5 lines 19-20).

As to claim 6, Duncan et al. further disclose that the sensor comprises a light transmitting module (col. 5, line 22) a light sensing module (col. 5 lines 39-46) adapted to directly receive a first light beam transmitted from the light transmitting module and to receive a second light

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beam transmitted from the light transmitting module and reflected back from the diaphragm (col. 5, lines 23-27) wherein the monitor and control system calculates the displacement of the diaphragm from an interference pattern generated from the first and second lights (col. 5 lines 35-50).

As to claim 7, Duncan et al. further disclose that the light transmitting module comprises a transmitting fiber (col. 5, lines 22-23) having an output coupled to a diffraction device that separates a source light into the first and second lights (col. 5, lines 35-38) wherein changes in the diaphragm displacement cause the interference pattern to include intensity modulated light (col. 5 lines 39-46) wherein the monitor and control system calculates the diaphragm displacement from the intensity modulated light (col. 5 lines 46-50).

Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,953,388 to Barada.

Barada discloses a proximity sensor comprising a measurement leg having a measurement probe coupled thereto (measurement channel 40 and measurement probe 58, Fig. 1) a reference leg having a reference probe coupled thereto (reference channel 42 and reference probe 60, Fig. 1) a bridge portion coupled between the measurement leg and the reference leg (col. 2 line 64 to col. 3 line 1) and a pressure sensor disposed within the bridge portion (col. 1, lines 22-29).

Claims 10-13 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,550,592 to Deschape.

As to claim 10, Deschape discloses a proximity sensor comprising a measurement leg having a measurement probe coupled thereto (branch passageways 28 and 32 and nozzle 40, Fig.

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2) a reference leg having a reference probe coupled thereto (branch passageways 26 and 30 and nozzle 40', Fig. 2) a bridge portion coupled between the measurement leg and the reference leg (differential pressure transducer 44, Fig. 2) and a pressure sensor disposed within the bridge portion (differential pressure transducer 44, Fig. 2).

As to claim 11, Deschape further discloses that the pressure sensor comprises a diaphragm having a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between the measurement leg and the reference leg (col. 3 lines 53-68) a sensor located proximate to the diaphragm and adapted to determine the displacement of the diaphragm inner portion (col. 3 lines 53-68) and a monitor and control system coupled to the sensor and adapted to determine the displacement of the diaphragm and adapted to determine the pressure difference from the displacement (col. 3 lines 53-68).

As to claim 12, Deschape discloses a proximity sensor comprising a measurement leg having a measurement probe coupled thereto (branch passageways 28 and 32 and nozzle 40, Fig. 1) a reference pressure (pressure in passageway-pressure chamber 30, Fig. 1, col. 3 lines 65-68) a bridge portion coupled between the measurement leg and the reference pressure (differential pressure transducer 44, Fig. 1) a diaphragm disposed within the bridge portion, the diaphragm including a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between the measurement leg and the reference pressure (differential pressure transducer 44, Fig. 1) a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion (col. 3 lines 53-68) and a monitor and control system coupled to the sensor and adapted to determine the displacement of the diaphragm and to determine the pressure difference from the displacement (col. 3 lines 53-68).

As to claim 13, Deschape discloses a measurement leg having a measurement probe coupled thereto (branch passageways 28 and 32 and nozzle 40, Fig. 1) a reference pressure (pressure in passageway-pressure chamber 30, Fig. 1, col. 3 lines 65-68) a bridge portion coupled between the measurement leg and the reference pressure (differential pressure transducer 44, Fig. 1) a diaphragm disposed within the bridge portion, the diaphragm including a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between the measurement leg and the reference pressure (differential pressure transducer 44, Fig. 1) a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion (col. 3 lines 53-68) and a monitor and control system coupled to the sensor and adapted to determine the displacement of the diaphragm and to determine the pressure difference from the displacement (col. 3 lines 53-68).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. U.S. Pat. No. 4,550,592 to Deschape in view of Published U.S. Application No. 2004/0099060 by Kijlstra et al.

Deschape discloses a pressure gauge comprising a diaphragm having a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between first and second sides of the diaphragm (col. 3 lines 53-68) a sensor located proximate to the

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diaphragm and adapted to sense the displacement of the diaphragm inner portion (col. 3 lines 53-68) and a monitor and control system coupled to the sensor and adapted to determine the pressure difference from the displacement of the diaphragm (col. 3 lines 53-68). Deschape fails, however, to disclose that the diaphragm is sensitive to pressure changes in a range of approximately 0.1 to 0.5 inches of water.

Kijlstra et al. disclose a pressure gauge with a diaphragm sensitive to pressure changes of 0.39 inches of water (100 Pa, paragraph 152).

It would have been obvious to one of ordinary skill in the art to make the pressure gauge of Deschape sensitive to pressure changes of the magnitude of Kijlstra et al. in order to achieve high resolution (Kijlstra paragraph 20) and generally increase the accuracy of the gauge.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,496,265 to Duncan et al. as applied to claim 6 above in view of U.S. Pat. No. 5,880,841 to Marron et al.

Duncan et al. further disclose that the light transmitting module comprises a transmitting fiber (fiber, Figs. 28a and 28b) outputting a first light at a first wavelength (LED at 850 nm, col. 2 lines 10-12) wherein changes in the diaphragm displacement cause the interference pattern to change wherein the monitor and control system comprises a counter that decodes the diaphragm displacement (col. 5, lines 39-50).

Duncan et al. fail to disclose that the light transmitting module comprises a second transmitting fiber outputting a second light at a second wavelength wherein the second wavelength is shifted relative to the first wavelength wherein changes in the diaphragm displacement cause the interference pattern to change with a substantially constant speed,

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wherein the monitor and control system comprises a counter that decodes the diaphragm displacement from the substantially constant speed.

Marron et al. disclose that the light transmitting module comprises a first light at a first wavelength and a second light at a second wavelength (plurality of lasers, Fig 1 and col. 5 lines 8-12) wherein the second wavelength is phase shifted relative to the first wavelength (col. 5, lines 2-7) wherein changes in the surface topography of an object causes the interference pattern to change (col. 4, line 58 to col. 5, line 13) wherein the monitor and control system decodes the height of the surface topography from the interference pattern changes.

It would have been obvious to one of ordinary skill in the art to modify the pressure gauge of Duncan et al. by adding the phase shifted second light having a second wavelength of Marron et al. in order to overcome the ambiguity associated with a single wavelength displacement measuring system (displacements differing by an even number of wavelengths are indistinguishable, col. 1, lines 21-32).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. U.S. Pat. No. 4,550,592 to Deschape in view of U.S. Pat. No. 6,105,436 to Lischer et al.

Deschape discloses a pressure gauge comprising a diaphragm having a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between first and second sides of the diaphragm (col. 3 lines 53-68) a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion (col. 3 lines 53-68) and a monitor and control system coupled to the sensor and adapted to determine the pressure difference from the displacement of the diaphragm (col. 3 lines 53-68). Deschape fails, however, to disclose that the inner portion of the diaphragm includes a grounded metallic

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surface, wherein the sensor includes a capacitive sensing device positioned adjacent to the grounded metallic surface, and wherein the monitor and control system determines the displacement based on capacitive changes in the capacitive sensing device.

Lischer et al. disclose that the inner portion of the diaphragm includes a grounded metallic surface (diaphragm 120 is grounded, col. 4, lines 16-23) wherein the sensor includes a capacitive sensing device positioned adjacent to the grounded metallic surface and wherein the monitor and control system determines the displacement based on capacitive changes in the capacitive sensing device (col. 4, lines 24-45).

It would have been obvious to one of ordinary skill in the art to modify the pressure gauge of Deschape by replacing the piezoresistive sensor with the capacitive sensor of Lischer et al. in order to separate the sensor element from the diaphragm in case repair or replacement is necessary.

Conclusion

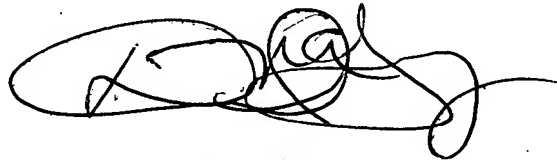
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S Pat. Nos. 4,953,388 and 6,892,583 and Published U.S. Application Nos. 2002/0003917; 2004/0118183 and 2004/0118184 disclose various optical pressure sensors and air gauges.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George P. Bonanto whose telephone number is (571) 272-2182. The examiner can normally be reached on M-F 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'David Gray', with a large, stylized flourish extending to the right.

David Gray
Primary Examiner

GPB